WHAT IS CLAIMED IS:

1. An optical bio-disc, comprising:

a substantially circular substrate having a center and an outer edge;

an active layer associated with said substrate; and

a strand of DNA including a reactive group which has an affinity for said active layer so that said reactive group attaches to said active layer to immobilize said strand of DNA in a target zone disposed between said center and said outer edge.

2. The optical bio-disc according to claim 1 wherein said strand of DNA is a single strand of DNA.

3. The optical bio-disc according to claim 1 wherein said strand of DNA includes a double strand of DNA.

4. The optical bio-disc according to any one of claims 1, 2, or 3 wherein said active layer is formed from a modified polystyrene.

5. The optical bio-disc according to claim 4 wherein said modified polystyrene is polystyrene-co-maleic anhydride.

6. A surface assembly for immobilizing DNA capture probes, said assembly comprising:

a substrate;

an active layer associated with said substrate; and

a strand of DNA including a reactive group which has an affinity for said active layer so that said reactive group attaches to said active layer to thereby immobilize said strand of DNA.

7. The assembly according to claim 6 wherein said strand of DNA is a single strand of DNA.

8. The assembly according to claim 6 wherein said strand of DNA includes a double strand of DNA.

9. The assembly according to any one of claims 6, 7, or 8 wherein said active layer is formed from a modified polystyrene.

10. The assembly according to claim 9 wherein said modified polystyrene is polystyrene-co-maleic anhydride.

11. An optical bio-disc, comprising:

a substrate having a tracking groove formed therein;

a reflective layer formed on at least a portion of said substrate so that an incident beam of electromagnetic energy may track along said groove

an active layer associated with said substrate; and

a strand of DNA including a reactive group which has an affinity for said active layer so that said reactive group attaches to said active layer to immobilize said strand of DNA.

12. The optical bio-disc according to claim 11 wherein said strand of DNA is a single strand of DNA.

13. The optical bio-disc according to claim 11 wherein said strand of DNA includes a double strand of DNA.

14. The optical bio-disc according to any one of claims 11, 12, or 13 wherein said active layer is formed from a modified polystyrene.

15. The optical bio-disc according to claim 14 wherein said modified polystyrene is polystyrene-co-maleic anhydride.

16. An optical bio-disc, comprising:

a substantially circular substrate having a center and an outer edge;

an active layer associated with said substrate; and

a strand of DNA including an amino group which has an affinity for said active layer so that said amino group attaches to said active layer to immobilize said strand of DNA in a target zone disposed between said center and said outer edge.

17. The optical bio-disc according to claim 16 wherein said strand of DNA is a single strand of DNA.

18. The optical bio-disc according to claim 16 wherein said strand of DNA includes a double strand of DNA.

19. The optical bio-disc according to any one of claims 16, 17, or 18 wherein said active layer is formed from a modified polystyrene.

20. The optical bio-disc according to claim 19 wherein said modified polystyrene is polystyrene-co-maleic anhydride.

21. An optical bio-disc, comprising:

a substrate having encoded information associated therewith, said encoded information being readable by a disc drive assembly to control rotation of the disc;

a target zone associated with said substrate, said target zone disposed at a predetermined location relative to said substrate

an active layer associated with said target zone; and

a strand of DNA including a reactive group which attaches to

said active layer so that when said substrate is rotated, said reactive group remains attached to said active layer to thereby maintain a number of said strands of DNA within said target zone.

22. The optical bio-disc according to claim 21 wherein said strand of DNA is a single strand of DNA.

23. The optical bio-disc according to claim 21 wherein said strand of DNA includes a double strand of DNA.

24. The optical bio-disc according to any one of claims 21, 22, or 23 wherein said active layer is formed from a modified polystyrene.

25. The optical bio-disc according to claim 23 wherein said modified polystyrene is polystyrene-co-maleic anhydride.

26. An optical bio-disc for testing for the presence of a target-DNA in a DNA sample, said bio-disc comprising:

a substrate having a center and an outer edge, and having encoded information associated therewith, said encoded information being readable by a disc drive assembly to control rotation of the disc;

a target zone associated with said substrate, said target zone disposed at a predetermined location relative to said center of said substrate;

an active layer associated with said target zone;

a strand of capture-DNA including a reactive group that attaches to said active layer to immobilize said strand of capture-DNA within said target zone;

a flow channel in fluid communication with said target zone;

a plurality of reporters deposited in said flow channel, each of said reporters having attached thereto a plurality of strands

of signal-DNA, said capture-DNA and said signal-DNA being non-complementary; and

an input site in fluid communication with said flow channel, said input site implemented to receive a DNA sample to be tested for the presence of a target-DNA that is complementary to said capture-DNA and said signal-DNA, so that when said DNA sample is deposited in said flow channel, said DNA sample and said reporters move into said target zone and hybridization occurs between said target-DNA and said capture-DNA, and said target-DNA and said signal-DNA thereby placing said reporters in said target zone when target-DNA is present in the DNA sample.

27. An optical bio-disc for testing for the presence of a target-DNA in a DNA sample, said bio-disc comprising:

a substrate having a center and encoded information associated therewith, said encoded information being readable by a disc drive assembly to control rotation of the disc;

a target zone associated with said substrate, said target zone disposed at a predetermined location relative to said center of said substrate;

an active layer associated with said target zone;

a strand of capture-DNA including a reactive group that attaches to said active layer to immobilize said strand of capture-DNA within said target zone;

a flow channel in fluid communication with said target zone;

a plurality of reporters deposited in said flow channel, each of said reporters including a binder that has an affinity for a target-DNA that is complementary to said capture-DNA; and

an input site in fluid communication with said flow channel, said input site implemented to receive a DNA sample to be tested for the presence of said target-DNA, so that when said DNA sample is deposited in said flow channel, said DNA sample and said reporters move into said target zone and hybridization occurs

between said target-DNA and said capture-DNA to thereby place said reporters in said target zone when target-DNA is present in the DNA sample.

28. An optical bio-disc for determining the presence of a target-DNA in a test sample, said bio-disc comprising:

a substrate having a center and an outer edge, and having encoded information associated therewith, said encoded information being readable by a disc drive assembly to control rotation of the disc;

a target zone associated with said substrate, said target zone disposed at a predetermined location relative to said center of said substrate;

an active layer associated with said target zone;

a strand of capture-DNA including a reactive group that attaches to said active layer to immobilize said strand of capture-DNA within said target zone;

a flow channel in fluid communication with said target zone; and

an input site in fluid communication with said flow channel, said input site implemented to receive a test sample including sample-DNA and a plurality of reporters, each of said reporters having attached thereto a plurality of strands of signal-DNA, said capture-DNA and said signal-DNA being non-complementary, said sample-DNA to be tested for the presence of a target-DNA that is complementary to said capture-DNA and said signal-DNA so that when said test sample is deposited in said flow channel, said test sample moves into said target zone and hybridization occurs between any target-DNA and said capture-DNA to thereby maintain said reporters in said target zone when target-DNA is present in the sample-DNA.

29. An optical bio-disc for determining the presence of a

target-DNA in a test sample, said bio-disc comprising:

a substrate having a center and encoded information associated therewith, said encoded information being readable by a disc drive assembly to control rotation of the disc;

a target zone associated with said substrate, said target zone disposed at a predetermined location relative to said center of said substrate;

an active layer associated with said target zone;

a strand of capture-DNA including a reactive group that attaches to said active layer to immobilize said strand of capture-DNA within said target zone;

a flow channel in fluid communication with said target zone; and

an input site in fluid communication with said flow channel, said input site implemented to receive a test sample including sample-DNA and a plurality of reporters, each of said reporters including a binder that has an affinity for a target-DNA that is complementary to said capture-DNA, said sample-DNA to be tested for the presence of said target-DNA so that when said test sample is deposited in said flow channel, said test sample and said reporters move into said target zone and hybridization occurs between any target-DNA and said capture-DNA to thereby maintain said reporters in said target zone when target-DNA is present in the sample-DNA.

30. The optical bio-disc according to any one of claims 26, 27, 28, or 29 wherein the presence of said target-DNA is determined by directing a beam of electromagnetic energy from the disc drive assembly toward said target zone and analyzing electromagnetic energy returned from said reporters.

31. A method of testing for the presence of a target-DNA in a DNA sample by use of an optical bio-disc, said method

comprising the steps of:

preparing a DNA sample to be tested for the presence of a target-DNA;

preparing a plurality of reporters each having attached thereto a plurality of strands of signal-DNA, the target-DNA and signal-DNA being complementary;

mixing said DNA sample and said plurality of reporters to thereby form a test sample;

allowing hybridization between said signal-DNA and any target-DNA existing in the DNA sample;

depositing said test sample in a flow channel of an optical bio-disc which is in fluid communication with a target zone, the target zone including a plurality of strands of capture-DNA each including a reactive group that attaches to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA and the signal-DNA being non-complementary;

allowing any target-DNA to hybridize with the capture-DNA so that reporters associated with the target-DNA are maintained within the capture zone;

removing from the target zone reporters with signal-DNA that is free of any target-DNA; and

detecting any reporters in the target zone to thereby determine whether target-DNA is present in the DNA sample.

32. A method of testing for the presence of a target-DNA in a DNA sample by use of an optical bio-disc, said method comprising the steps of:

preparing a DNA sample to be tested for the presence of a target-DNA;

depositing said DNA sample in a mixing chamber of an optical bio-disc which is linked to a target zone by a connecting flow channel, the mixing chamber including a plurality of reporters, each of said reporters including a binder that has an affinity

for the target-DNA;

allowing any target-DNA existing in the DNA sample to bind to the reporters;

rotating the optical bio-disc to cause the DNA sample to move from the mixing chamber through the flow channel and into the target zone, the target zone including a plurality of strands of capture-DNA each including a reactive group that attaches to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA and the target-DNA being complementary;

allowing any target-DNA to hybridize with the capture-DNA so that reporters associated with the target-DNA are maintained within the capture zone;

removing from the target zone reporters that are free of any target-DNA; and

detecting any reporters in the target zone to thereby determine whether target-DNA is present in the DNA sample.

33. A method of testing for the presence of a target-DNA in a DNA sample by use of an optical bio-disc, said method comprising the steps of:

preparing a DNA sample to be tested for the presence of a target-DNA;

depositing said DNA sample in a mixing chamber of an optical bio-disc which is linked to an interconnecting flow channel including a target zone, the mixing chamber including a plurality of reporters each having attached thereto a plurality of strands of signal-DNA, the target-DNA and signal-DNA being complementary;

allowing hybridization between said signal-DNA and any target-DNA existing in the DNA sample while in the mixing chamber of the optical bio disc;

rotating the optical bio-disc to cause the DNA sample to move from the mixing chamber through the flow channel and into the

target zone, the target zone including a plurality of strands of capture-DNA each including a reactive group that attaches to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA and the signal-DNA being non-complementary;

allowing any target-DNA to hybridize with the capture-DNA so that reporters associated with the target-DNA are maintained within the capture zone;

removing from the target zone reporters with signal-DNA that is free of any target-DNA; and

detecting any reporters in the target zone to thereby determine whether target-DNA is present in the DNA sample.

34. A method of testing for the presence of a target-DNA in a DNA sample by use of an optical bio-disc, said method comprising the steps of:

preparing a DNA sample to be tested for the presence of a target-DNA;

preparing a plurality of reporters each of said reporters including a binder that has an affinity for the target-DNA;

mixing said DNA sample and said plurality of reporters to thereby form a test sample;

allowing any target-DNA existing in the DNA sample to attach to the reporters;

depositing said test sample in a flow channel of an optical bio-disc which is in fluid communication with a target zone, the target zone including a plurality of strands of capture-DNA each including a reactive group that attaches to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA and the target-DNA being complementary;

allowing any target-DNA to hybridize with the capture-DNA so that reporters associated with the target-DNA are maintained within the capture zone;

removing from the target zone reporters that are free of any target-DNA; and

detecting any reporters in the target zone to thereby determine whether target-DNA is present in the DNA sample.

35. The method according to either claim 31, 32, 33 or 34 wherein said removing step is performed by rotating the optical bio-disc.

36. The method according to any one of claims 31, 32, 33, or 34 wherein the presence of said target-DNA is determined by directing a beam of electromagnetic energy from a disc drive assembly toward said target zone and analyzing electromagnetic energy reflected from said bio-disc.

37. The method according to any one of claims 31, 32, 33, or 34 wherein the presence of said target-DNA is determined by directing a beam of electromagnetic energy from a disc drive assembly toward said target zone and analyzing electromagnetic energy transmitted through said bio-disc.

38. A method of making an optical bio-disc for testing for the presence of a target-DNA in a DNA sample, said method comprising the steps of:

providing a substrate having a center and an outer edge;

encoding information on an information layer associated with the substrate, said encoded information being readable by a disc drive assembly to control rotation of the disc;

forming a target zone in association with said substrate, said target zone disposed at a predetermined location relative to said center of said substrate;

applying an active layer in said target zone;

depositing within said target zone, a plurality of strands of

capture-DNA each including a reactive group that attaches to said active layer to immobilize said strands of capture-DNA within said target zone

forming a flow channel in fluid communication with said target zone;

forming a mixing chamber in fluid communication with the flow channel;

depositing a plurality of reporters in the mixing chamber, each of said reporters including a binder that has an affinity for a target-DNA that is complementary to said capture-DNA; and

designating an input site associated with the mixing chamber, the input site implemented to receive a DNA sample to be tested for the presence of any target-DNA, so that when the DNA sample is deposited in the mixing chamber and the disc is rotated, the DNA sample and the reporters move into the target zone and hybridization occurs between the target-DNA and the capture-DNA to thereby place the reporters in the target zone when target-DNA is present in the DNA sample.

39. A method of making an optical bio-disc for determining the presence of a target-DNA in a test sample, said method comprising the steps of:

providing a substrate having a center and an outer edge;

encoding information on an information layer associated with the substrate, the encoded information being readable by a disc drive assembly to control rotation of the disc;

forming a target zone in association with the substrate, the target zone disposed at a predetermined location relative to the center of the substrate;

applying an active layer in the target zone;

depositing within the target zone, a plurality of strands of capture-DNA each including a reactive group that attaches to the active layer to immobilize the strands of capture-DNA within the

target zone; and

forming a flow channel in fluid communication with the target zone, the flow channel implemented to receive a test sample including sample-DNA and a plurality of reporters, each of the reporters having attached thereto a plurality of strands of signal-DNA, the capture-DNA and the signal-DNA being non-complementary, the sample-DNA to be tested for the presence of a target-DNA that is complementary to the capture-DNA and the signal-DNA so that when the test sample is deposited in the flow channel, the test sample moves into the target zone and hybridization occurs between any target-DNA and the capture-DNA to thereby maintain reporters with hybridized DNA in the target zone when target-DNA is present in the sample-DNA.

40. A method of making an optical bio-disc for determining the presence of a target-DNA in a test sample, said method comprising the steps of:

providing a substrate having a center;

encoding information on an information layer associated with the substrate, the encoded information being readable by a disc drive assembly to control rotation of the disc;

forming a target zone in association with the substrate, the target zone disposed at a predetermined location relative to the center of the substrate;

depositing an active layer in the target zone;

depositing in the target zone, a plurality of strands of capture-DNA each including a reactive group that attaches to the active layer to immobilize the strands of capture-DNA within the target zone; and

forming a flow channel in fluid communication with the target zone, the flow channel implemented to receive a test sample including sample-DNA and a plurality of reporters, each of the reporters including a binder that has an affinity for a target-

DNA that is complementary to the capture-DNA, the sample-DNA to be tested for the presence of the target-DNA so that when the test sample is deposited in the flow channel, the test sample and the reporters move into the target zone and hybridization occurs between any target-DNA and the capture-DNA to thereby maintain the reporters in the target zone when target-DNA is present in the sample-DNA.

41. A method of making an optical bio-disc to test for the presence of a target-DNA in a DNA sample, the method comprising the steps of:

providing a substrate having a center and an outer edge;

encoding information on an information layer associated with the substrate, the encoded information being readable by a disc drive assembly to control rotation of the disc;

forming a target zone in association with the substrate, the target zone disposed at a predetermined location relative to the center of the substrate;

depositing an active layer in the target zone;

depositing a plurality of strands of capture-DNA in the target zone, each strand of capture-DNA including a reactive group that attaches to the active layer to immobilize the strands of capture-DNA within the target zone;

forming a flow channel in fluid communication with the target zone;

forming a mixing chamber in fluid communication with the flow channel; and

depositing a plurality of reporters in the mixing chamber, each of the reporters having attached thereto a plurality of strands of signal-DNA, the capture-DNA and the signal-DNA being non-complementary.

42. The method according to any one of claims 38, 39, 40 or 41 wherein the presence of the target-DNA is determined by directing a beam of electromagnetic energy from the disc drive assembly toward the target zone and analyzing electromagnetic energy returned from the reporters.

43. An optical bio-disc, comprising:

a substrate having a center and an outer edge, said substrate forming a distal layer of the bio-disc, said substrate having a top surface and a bottom surface relative to an interrogation beam of electromagnetic energy directed from a disc drive;

a reflective layer formed on the bottom surface of said substrate;

an active layer associated with said substrate and said reflective layer; and

a strand of capture DNA including a reactive group which has an affinity for said active layer so that said reactive group attaches to said active layer to immobilize said strand of DNA in a target zone disposed between said center and said outer edge.

44. The optical bio-disc according to claim 43 wherein said strand of capture DNA is complementary to a strand of target DNA which includes a reporter that is detectable by said interrogation beam.

45. The optical bio-disc according to either claim 43 or 44 wherein said strand of capture DNA is a single strand of DNA.

46. The optical bio-disc according to either claim 43 or 44 wherein said strand of capture DNA includes a double strand of DNA.

47. The optical bio-disc according to either claim 43 or 44 wherein said active layer is formed from a modified polystyrene.

48. The optical bio-disc according to claim 47 wherein said modified polystyrene is polystyrene-co-maleic anhydride.

49. The optical bio-disc according to either claim 43 or 44 wherein said reflective layer is interposed between said substrate and said active layer.

50. A method of testing for the presence of a target-RNA in a sample by use of an optical bio-disc, said method comprising the steps of:

preparing a sample to be tested for the presence of a target-RNA;

preparing a plurality of reporters each having attached thereto a plurality of strands of signal-DNA, the target-RNA and signal-DNA being complementary;

mixing said sample and said plurality of reporters to thereby form a test sample;

allowing hybridization between said signal-DNA and any target-RNA existing in the DNA sample;

depositing said test sample in a flow channel of an optical bio-disc which is in fluid communication with a target zone, the target zone including a plurality of strands of capture-DNA each including a reactive group that attaches to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA and the signal-DNA being non-complementary;

allowing any target-RNA to hybridize with the capture-DNA so that reporters associated with the target-RNA are maintained within the capture zone;

removing from the target zone reporters with signal-DNA that is free of any target-RNA; and

detecting any reporters in the target zone to thereby determine whether target-RNA is present in the sample.

51. A method of testing for the presence of a target-RNA in a sample by use of an optical bio-disc, said method comprising the steps of:

preparing a sample to be tested for the presence of a target-RNA;

depositing said sample in a mixing chamber of an optical bio-disc which is linked to a target zone by a connecting flow channel, the mixing chamber including a plurality of reporters, each of said reporters including a binder that has an affinity for the target-RNA;

allowing any target-RNA existing in the sample to bind to the reporters;

rotating the optical bio-disc to cause the sample to move from the mixing chamber through the flow channel and into the target zone, the target zone including a plurality of strands of capture-DNA each including a reactive group that attaches to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA and the target-RNA being complementary;

allowing any target-RNA to hybridize with the capture-DNA so that reporters associated with the target-RNA are maintained within the capture zone;

removing from the target zone reporters that are free of any target-RNA; and

detecting any reporters in the target zone to thereby determine whether target-RNA is present in the sample.

52. A method of testing for the presence of a target-RNA in a sample by use of an optical bio-disc, said method comprising the steps of:

preparing a sample to be tested for the presence of a target-RNA;

depositing said sample in a mixing chamber of an optical bio-disc which is linked to an interconnecting flow channel including a target zone, the mixing chamber including a plurality of reporters each having attached thereto a plurality of strands of signal-DNA, the target-RNA and signal-DNA being complementary;

allowing hybridization between said signal-DNA and any target-RNA existing in the sample while in the mixing chamber of the optical bio disc;

rotating the optical bio-disc to cause the sample to move from the mixing chamber through the flow channel and into the target zone, the target zone including a plurality of strands of capture-DNA each including a reactive group that attaches to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA and the signal-DNA being non-complementary;

allowing any target-RNA to hybridize with the capture-DNA so that reporters associated with the target-RNA are maintained within the capture zone;

removing from the target zone reporters with signal-DNA that is free of any target-RNA; and

detecting any reporters in the target zone to thereby determine whether target-RNA is present in the DNA sample.

53. A method of testing for the presence of a target-RNA in a sample by use of an optical bio-disc, said method comprising the steps of:

preparing a sample to be tested for the presence of a target-RNA;

preparing a plurality of reporters, each of said reporters including a binder that has an affinity for the target-RNA;

mixing said sample and said plurality of reporters to thereby

form a test sample;

allowing any target-RNA existing in the sample to attach to the reporters;

depositing said test sample in a flow channel of an optical bio-disc which is in fluid communication with a target zone, the target zone including a plurality of strands of capture-DNA each including a reactive group that attaches to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA and the target-RNA being complementary;

allowing any target-RNA to hybridize with the capture-DNA so that reporters associated with the target-RNA are maintained within the capture zone;

removing from the target zone reporters that are free of any target-RNA; and

detecting any reporters in the target zone to thereby determine whether target-RNA is present in the sample.

54. The method according to either claim 50, 51, 52 or 53 wherein said removing step is performed by rotating the optical bio-disc.

55. The method according to any one of claims 50, 51, 52, or 53 wherein the presence of said target-RNA is determined by directing a beam of electromagnetic energy from a disc drive assembly toward said target zone and analyzing electromagnetic energy reflected from said bio-disc.

56. The method according to any one of claims 50, 51, 52, or 53 wherein the presence of said target-RNA is determined by directing a beam of electromagnetic energy from a disc drive assembly toward said target zone and analyzing electromagnetic energy transmitted through said bio-disc.

57. A method of testing for the presence of a target-DNA in a DNA sample by use of an optical bio-disc, said method comprising the steps of:

preparing a DNA sample to be tested for the presence of a target-DNA, said DNA sample including an affinity agent;

preparing a plurality of reporters each of said reporters including a plurality of binders that has an affinity for the affinity agent on the target-DNA;

depositing said DNA sample in a flow channel of an optical bio-disc which is in fluid communication with a target zone, the target zone including at least one strand of capture-DNA that is attached to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA being complementary to a segment of the target-DNA;

allowing any target-DNA to hybridize with the capture-DNA;

removing from the target zone unbound DNA sample;

depositing said reporters in said flow channel;

allowing reporters to bind to the bound target-DNA on said target zone so that reporters associated with the target-DNA are maintained within the capture zone;

removing from the target zone unbound reporters; and

detecting reporters in the target zone to thereby determine whether target-DNA is present in the DNA sample.

58. A method of testing for the presence of a target-DNA in a DNA sample by use of an optical bio-disc, said method comprising the steps of:

preparing a DNA sample to be tested for the presence of a target-DNA;

preparing a plurality of signal-DNA for association with said target-DNA, the target-DNA and signal-DNA being complimentary at least in part, said signal-DNA including an affinity agent;

preparing a plurality of reporters each of said reporters including a plurality of binders that has an affinity for the affinity agent on the signal-DNA;

depositing said DNA sample in a flow channel of an optical bio-disc which is in fluid communication with a target zone, the target zone including a plurality of strands of capture-DNA that attach to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA and the target-DNA being at least partially complementary;

allowing any target-DNA to hybridize with the capture-DNA; removing from the target zone unbound DNA sample;

depositing said signal-DNA in said flow channel;

allowing signal-DNA to hybridize to said target-DNA in the target zone, said signal-DNA and said capture-DNA being non-complimentary;

removing from the target zone unbound signal-DNA;

depositing said reporters in said flow channel;

allowing reporters to bind to the bound signal-DNA so that reporters associated with the target-DNA are maintained within the capture zone;

removing from the target zone unbound reporters; and

detecting reporters in the target zone to thereby determine whether target-DNA is present in the DNA sample.

59. A method of testing for the presence of a target-RNA in an RNA sample by use of an optical bio-disc, said method comprising the steps of:

preparing an RNA sample to be tested for the presence of a target-RNA;

preparing a plurality of signal-DNA for association with said target-RNA, the target-RNA and signal-DNA being complimentary at least in part, said signal-DNA including an affinity agent;

preparing a plurality of reporters each of said reporters

including a plurality of binders that has an affinity for the affinity agent on the signal-DNA;

depositing said RNA sample in a flow channel of an optical bio-disc which is in fluid communication with a target zone, the target zone including a plurality of strands of capture-DNA that attach to an active layer to immobilize the strands of capture-DNA within the target zone, the capture-DNA and the target-RNA being at least partially complementary;

allowing any target-RNA to hybridize with the capture-DNA;

removing from the target zone unbound RNA sample;

depositing said signal-DNA in said flow channel;

allowing signal-DNA to hybridize to said target-RNA in the target zone, said signal-DNA and said capture-DNA being non-complimentary;

removing from the target zone unbound signal-DNA;

depositing said reporters in said flow channel;

allowing reporters to bind to the bound signal-DNA so that reporters associated with the target-RNA are maintained within the capture zone;

removing from the target zone unbound reporters; and

detecting reporters in the target zone to thereby determine whether target-RNA is present in the RNA sample.

60. The method according to any one of claims 57, 58, or 59 wherein said step of removing unbound reporters is performed by rotating the optical bio-disc.

61. The method according to either claim 57 or 58 wherein the presence of said target-DNA is determined by directing a beam of electromagnetic energy from a disc drive assembly toward said target zone and analyzing electromagnetic energy reflected from the disc.

62. The method according to claim 59 wherein the presence of said target-RNA is determined by directing a beam of electromagnetic energy from a disc drive assembly toward said target zone and analyzing electromagnetic energy reflected from the disc.

63. The method according to either claim 57 or 58 wherein the presence of said target-DNA is determined by directing a beam of electromagnetic energy from a disc drive assembly toward said target zone and analyzing electromagnetic energy transmitted through the disc.

64. The method according to claim 59 wherein the presence of said target-RNA is determined by directing a beam of electromagnetic energy from a disc drive assembly toward said target zone and analyzing electromagnetic energy transmitted through the disc.

65. The optical disc according to any one of claims 1, 11, 21, 26, 27, 28, 29, or 43, wherein the reactive group is an amino group.

66. The surface assembly of claim 6, wherein the reactive group is an amino group.

67. The method of any one of claims 31, 32, 33, or 34, wherein the reactive group is an amino group.

68. The method of any one of claims 38, 39, 40, or 41, wherein the reactive group is an amino group.

69. The method of any one of claims 50, 51, 52, or 53, wherein the reactive group is an amino group.